2.0 WASTE MANAGEMENT UNITS

The information provided in this section is submitted to address the applicable container storage requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, 20.4.1 NMAC, Subpart IX, 270.15, and 20.4.1 NMAC, Subpart V, Part 264, Subpart I, revised June 14, 2000 [6-14-00]. This section provides a general description of the Los Alamos National Laboratory (LANL) Technical Area (TA) 50 container storage units (CSU) and waste management practices. Detailed information on and figures of the TA-50 CSUs are provided in Attachment G of this permit renewal application. A summary of applicable regulatory references for container storage and the corresponding location where the requirement is addressed in this permit renewal application is located in Attachment G, Table G-1.

2.1 CONTAINER STORAGE

TA-50 is located at the northeast corner of the intersection of Pajarito Drive and Pecos Road, on the finger mesa bounded by Mortandad Canyon to the north and Two-Mile Canyon to the south. The CSUs at TA-50 include the TA-50-69, Indoor CSU and the TA-50-69, Outdoor CSU. The following provides descriptions of the locations and capacity, potential storage containers, and minimum aisle space requirements for the TA-50 CSUs.

2.1.1 Storage Capacity

The maximum storage capacity of the TA-50 CSUs is as follows:

- TA-50-69, Indoor CSU – 1,500 gallons (gal.)
- TA-50-69, Outdoor CSU – 30,000 gal.

General dimensions, containment features, and materials of construction for each CSU are provided in Attachment G of this permit renewal application to satisfy the requirements of 20.4.1 NMAC, Subpart IX, 270.15(a)(1) and (2) [6-14-00].

2.1.2 Storage Containers

Containers that will be used to store wastes at the TA-50 CSUs include, but are not limited to 5-, 30-, 55-, 83-, 85-, and 110-gal. steel and/or poly drums; standard fiberglass-reinforced plywood (FRP) boxes; steel standard waste boxes (SWBs); metal overpack boxes; steel B25 and B12 boxes; various small containers; and oversized, irregularly shaped FRP boxes. The following sections provide

descriptions of the storage containers considered acceptable for waste storage at the TA-50-69, Indoor and Outdoor CSUs.

2.1.2.1 55-Gallon Drums

The most common drum to be used for storage is the 55-gal. drum. The standard 55-gal. drum in use is constructed of 16-gauge steel, has an approximate 22-inch (in.) inner diameter, and a usable inside height of approximately 33 in. Standard 55-gal. drums meet the U.S. Department of Transportation (DOT) requirements.

2.1.2.2 Fiberglass-Reinforced Plywood Boxes

Standard-size FRP boxes used for storage measure 4 foot (ft) by 4 ft by 8 ft. The outer surface of the FRP boxes is coated with a 0.06- to 0.12-in.- (60- to 120-mil)- thick layer of epoxy-impregnated fiberglass. At times, nonstandard-size FRP boxes are designed and constructed to contain odd-shaped or oversized waste.

2.1.2.3 Standard Waste Boxes

Two different types of SWBs are used for storage at the TA-50 CSUs. One type is constructed of 14-gauge steel and has rounded ends. It measures 52 in. by 69 in. by 36 in., has continuous welds on all four sides and on the bottom, and has a lid with a closed-cell neoprene gasket that is secured in place with bolts. The second type of SWB is also constructed of 14-gauge steel, but is rectangular in shape. Its dimensions are 56 in. by 72 in. by 37 in. It has continuous welds on all four sides and on the bottom and a lid that is clamped and welded in place.

2.1.2.4 Overpacks

The metal overpack containers vary in size and have continuous welds both inside and outside on all four sides and on the bottom. The lid has a gasket made of closed-cell neoprene and can be strapped closed or clipped down. The metal overpacks are elevated by design with risers for ease of handling. B25 overpacks are constructed of 16-gauge welded carbon steel, are a standard size of 4 ft by 4 ft by 6 ft, and are elevated by design. All B25 overpacks have a rubber gasket with either a bolt-on, clipped-pinned, or hinged lid.

Overpacks are used when a container's integrity is suspect, or if cracks or leaks are observed. The 85-gal. drums are commonly used to overpack 55-gal. drums, and 110-gal. drums are used to overpack 85-gal. drums. The 85-gal. overpacks are constructed of 16-gauge steel, at a minimum. Universal sorbent is generally added to the interior of the overpack. The lid is secured to the overpack

with a 12-gauge bolt ring complete with a 5/8-in. closure bolt. Rounded-end SWBs are used to overpack drums of various sizes that contain mixed transuranic waste. Metal boxes are used as overpacks for FRP boxes.

2.1.3 Minimum Aisle Space and Storage Configuration

Waste containers at the TA-50 CSUs are arranged in rows with a minimum aisle space of 24 in. Storage configuration within a row depends upon the type of container, its size, and weight restrictions. Fifty-five gallon drums and SWBs are arranged in rows and may be stacked to a maximum of two high. The 85-gallon drums are not stacked. Large waste boxes are also stacked to a maximum of two high, unless size and width restrictions prohibit stacking due to safety concerns.

2.1.3.1 TA-50-69, Indoor CSU

Waste to be stored in the TA-50-69, Indoor CSU is positioned in an area away from any worker activity or traffic that is unrelated to the management of the waste itself. Adequate space is maintained around each storage pallet to allow for inspection of all containers. Due to volumes and placement of waste, aisle spacing is not an issue at this CSU. Solid waste stored in containers connected to the packaging/bagout module of the glovebox enclosure do not require aisle spacing. Incompatible wastes will not be stored inside the glovebox enclosure.

2.1.3.2 TA-50-69, Outdoor CSU

Drum containers at the TA-50-69, Outdoor CSU are stacked to a maximum of two high based upon size and weight. Adequate space is maintained between rows of containers. Container rows in the transportainers are typically oriented north/south and in one of two configurations. The first configuration stores containers on dollies in rows along both walls of the transportainer with a main aisle running down the center. Containers stored on dollies are rotated during routine inspections so that the entire drum can be inspected. The second configuration stores containers on pallets placed against one wall of the transportainer with a main aisle running along the opposite wall. Adequate space is maintained between each pallet and between the pallet and the transportainer wall to allow for visual inspection. To facilitate container movement, storage, and inspection, all drums and irregular containers holding wastes are stored on either pallets or dollies.

2.1.4 Authorized Waste Identification

The TA-50 CSUs will store containers of hazardous and mixed waste bearing the appropriate U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers presented in the LANL General Part A (LANL, 1998b). These wastes do not contain free liquids as defined by the Waste Isolation Pilot Plant Waste Acceptance Criteria, which include:

- Liquids that readily separate from the solid portion of a waste under ambient temperature and pressure; and
- Liquids that are not absorbed into a host material such that it could spill or drain from its container.

Additional information on the wastes to be stored at the TA-50 CSUs is provided in the waste analysis plan, Appendix B of the LANL General Part B (LANL, 1998a).

2.1.5 Condition of Containers [20.4.1 NMAC, Subpart V, 264.171, 264.173, and 264.174]

As required by 20.4.1 NMAC, Subpart V, 264.171 [6-14-00], any container that is not in good condition (e.g., severe rusting, apparent structural defects) will be overpacked, or the wastes will be transferred and repackaged in containers that are in good condition before being placed into storage. All containers will be kept closed during storage, in accordance with 20.4.1 NMAC, Subpart V, 264.173(a) [6-14-00], except when waste is added to or removed from the container or when a container's contents need to be repackaged. Containers will be handled and stored at all times in a manner that will not rupture a container nor cause it to leak, as required by 20.4.1 NMAC, Subpart V, 264.173(b) [6-14-00].

Any container of waste that shows signs of structural instability or leakage will be overpacked in a DOT-approved container, or the waste will be transferred into a container that is in good condition, as required by 20.4.1 NMAC, Subpart V, 264.171 [6-14-00]. When specified by DOT, liners will be used inside the waste container.

2.1.6 Compatibility of Waste with Containers

The container materials and liners will be selected to ensure that the ability of the container to contain the waste is not impaired as required by 20.4.1 NMAC, Subpart V, 264.172 [6-14-00]. Based on manufacturer's tolerance specifications, container material and liners used will not react with, and will be compatible with, the waste.

2.1.7 Management of Containers

Waste containers are kept closed during storage and staging, except when it is necessary to add or remove waste, as allowed by 20.4.1 NMAC, Subpart V, 264.173(a) [6-14-00]. Some mixed waste containers are vented and have carbon composite filters that allow gases (e.g., hydrogen), if any, to be released, but prevent the release of airborne particulates. Waste containers are closed or vented, handled, staged, and stored to prevent rupture, leakage, or spillage, as required by 20.4.1 NMAC, Subpart V, 264.173(b) [6-14-00]. Containers are managed at the TA-50 CSUs in accordance with written facility-specific procedures to minimize the potential for damage to or spillage from waste containers. All waste handlers at TA-50 are thoroughly trained in the safe use of waste container handling and transport equipment in accordance with Appendix C of the LANL General Part B. Because the TA-50 yard area is graded and paved, jarring of containers during transport is minimized. To protect the integrity of waste containers received at the TA-50 CSUs, only equipment designed for moving waste containers is used. Small waste containers may be handled manually or with dollies. Each TA-50 CSU is equipped with structures and equipment to facilitate safe loading, unloading, and movement of waste containers, as described in Attachment G of this permit renewal application.

2.1.7.1 Movement of Containers

All waste received at the TA-50 CSUs is manifested and transported from LANL waste generator or storage locations in accordance with applicable DOT regulations. LANL procedures establish vehicle and operator qualifications and provide specifications for loading and transporting waste. The loading and unloading of containers is also described in more detail in Section G.2.4.1. Waste received at TA-50 meets site-specific waste acceptance criteria (WAC) to ensure wastes and their containers are appropriate for storage in the various CSUs. The WAC is established to ensure wastes destined for TA-50 are identified as to form, packaged in DOT-approved containers appropriate for the waste, and markings and labels required by applicable EPA and DOT regulations are used. In addition, the WAC requires waste containers to be in good condition without signs of corrosion or structural defects.

2.1.7.2 Waste Container Labeling

All waste containers will be marked with a bar code identification number that corresponds to a number in LANLs waste management database. This database is composed of information supplied by the waste generator before storage by waste management personnel after the waste has been received. This information includes the name and location of the waste generator, waste characterization information, packaging, waste certification, receiving site, and storage location. All containers with hazardous or mixed waste will be labeled with a hazardous waste label that lists the appropriate EPA hazardous waste number(s). All containers are clearly marked to identify the contents and the date

each period of accumulation begins. In the event that a container is repackaged, repackaging personnel will ensure the new container is properly labeled. When waste containers are moved during storage, their waste package identification numbers (bar codes), origin and destination, and package changes (e.g., overpack volume, overpack dimensions) will be documented. The waste management database will then be updated to reflect any new information.

2.1.8 Containment Systems [20.4.1 NMAC, Subpart IX, 270.15(a)(1-5) and 270.15(b)(1-2)]

To demonstrate compliance with 20.4.1 NMAC, Subpart IX, 270.15(b)(1)[6-14-00], information documented in LANL waste management databases will be used to initially verify the absence of free liquids in containers. Containers that cannot be verified are characterized with real-time radiography (RTR) prior to being sent to the TA-50 CSUs. FRP boxes that hold glove boxes do not contain any free liquids. Free liquids discovered during past inspections and/or RTR are removed from the FRP boxes at TA-54, Area G, or elsewhere, before transport and storage at TA-50. FRP boxes that have poor structural integrity are overpacked in metal containers to facilitate safe transport and storage.

FRP boxes, SWBs, and steel B25 and B12 boxes are elevated by design. The pallets and/or devices used to elevate containers at the TA-50 CSUs are constructed of impervious, corrosion-resistant materials compatible with the wastes.

Elevated containers, pallets and/or devices (such as the glovebox in the TA-50-69 Indoor CSU) provide protection from potential contact with standing liquids that could be introduced through fire suppression activities. Together, these waste management practices and design features satisfy the requirements of 20.4.1 NMAC, Subpart IX, 270.15(b)(2) and 20.4.1 NMAC, Subpart V, 264.175(c) [6-14-00].

2.1.8.1 TA-50-69, Indoor CSU

This section describes containment systems specific to each room within the TA-50-69, Indoor CSU. Rooms 102 and 103 of TA-50-69 historically have been used to store contaminated glove boxes and other mixed wastes associated with the Waste Characterization, Reduction, and Repacking Facility operations. The total design capacity for these two rooms is 1,500 gal. and there is no physical barrier between them. A steel mezzanine added to the western third of the main process room is used for storage of materials and equipment. The mezzanine is not part of the CSU.

A large glove box enclosure is located inside the main process room for size reduction of radioactively contaminated metallic items. The glove box enclosure measures 15 ft wide, 30 ft long, and 10 ft high and is constructed of type 304 stainless steel with a high-polish finish. It was originally assembled in

four separate modules: Airlock, disassembly, cutting, and packaging/bagout. The modules are bolted together and seal welded. Although assembled as four modules, the structure is a single continuous volume, entirely self-contained, and meets all the requirements for containment of free liquids. The glove box enclosure was leak-tested before use. A floor drain is located near the glove box enclosure and is connected directly to the Radioactive Liquid Waste Treatment Facility (RLWTF). Waste containers are stored on pallets to prevent contact between the containers and any standing liquid. Collected liquids will be held in DOT-approved containers until they are sampled and analyzed in accordance with Appendix E of the LANL General Part B (LANL, 1998a). To facilitate container movement, storage, and inspection, all drums and irregular containers are stored on either wooden pallets or dollies.

The glove box enclosure is airtight and provides a containment system that meets the requirements of 20.4.1 NMAC, Subpart V, 264.175(b) [6-14-00]. Containers inside the glove box enclosure are elevated to prevent contact with potentially accumulated liquid. Any accumulated liquid in the glove box enclosure is removed as soon as possible after discovery to prevent overflow. Collected liquids are held in DOT-approved containers until they are sampled and analyzed in accordance with Appendix E of the LANL General Part B (LANL, 1998a). The design and operation of the pallets and glove box enclosure meet the requirements of 20.4.1 NMAC, Subpart V, 264.175(b) and 20.4.1 NMAC, Subpart IX, 270.15(a)(1) through (4) [6-14-00].

A floor drain is located in the eastern part of Room 103. The drain is plumbed directly to the RLWTF. Containers in Room 103 are stored on pallets that provide segregation of incompatible wastes in the event that a container is breached and prevent contact with potentially accumulated liquids. Any accumulated liquids in the room are removed as soon as possible after discovery. Collected liquids are held in DOT-approved containers until they are sampled and analyzed in accordance with Appendix E of the LANL General Part B (LANL, 1998a). Equipment that is located inside Room 103, but not associated with the CSU, includes a chemical decontamination fume hood, continuous feed welding system, and Heliarc welding system.

2.1.8.2 TA-50-69, Outdoor CSU

Capacity for the TA-50-69, Outdoor CSU is 30,000 gal. The waste to be stored in this CSU is expected to be solid waste; any liquids present would be residual liquids only. The TA-50-69, Outdoor CSU consists of transportainers and waste pallets stored on an asphalt pad. It does not have permanent secondary containment built into it.

Incompatible wastes stored at the Outdoor CSU are separated on pallets to keep the wastes segregated in the event that a container is breached.

2.1.9 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking/breached containers, deterioration of containers, and/or loss of integrity of a containment system, as required by 20.4.1 NMAC, Subpart V, 264.174 [6-14-00]. The inspections will include checking the structural integrity of containers (e.g., for bulging or warping). Inspections will follow the Inspection Plan in Appendix C of the LANL General Part B (LANL, 1998a) and Attachment C of this permit renewal application.

2.1.10 Special Requirements for Ignitable, Reactive, and Incompatible Wastes [20.4.1 NMAC, Subpart V, 264.17 and 20.4.1 NMAC, Subpart IX, 270.15(c) and 270.15(d)]

To prevent accidental ignition or reaction of ignitable, reactive, or incompatible waste at the TA-50 CSUs, TA-50 personnel will manage hazardous and mixed waste using the precautions described in this section.

If containerized ignitable and/or reactive wastes (e.g., discarded materials contaminated with ignitable spent solvents, reactive metal debris) are stored at any of the CSUs, the containers will be located at least 50 ft from the facility property line at all times (refer to Map 2 of the General Part A (LANL 1998b). All ignitable and reactive wastes will be protected from sources of ignition or reaction, in accordance with 20.4.1 NMAC, Subpart V, 264.17(a) [6-14-00]. The following policies and controls are in place at TA-50, which minimize the possibility of accidental ignition:

- Most mechanical equipment operated within the areas is grounded to minimize the potential for sparking by dissipating static charges.
- Smoking is not allowed in or near the CSUs.
- "No Smoking" signs are conspicuously placed wherever there is a potential hazard from ignitable or reactive waste, as required by 20.4.1 NMAC, Subpart V, 264.17(a) [6-14-00].

Together, these measures meet the requirements of 20.4.1 NMAC, Subpart V, 264.17(a) and (b), and 264.176 [6-14-00].

Incompatible wastes, if any, will be segregated during storage. In addition, incompatible wastes will not be mixed and waste will not be placed in a container that previously held an incompatible waste as required by 20.4.1 NMAC, Subpart V, 264.177(a) and (b), and 20.4.1 NMAC, Subpart IX, 270.15(d) [6-14-00].

Pursuant to the requirements of 20.4.1 NMAC, Subpart V, 264.172 [6-14-00], only containers constructed of or lined with materials that will not react with and are otherwise compatible with the waste to be stored will be used for storage at the TA-50 CSUs.

Waste management database information and results of waste characterization activities provide documentation of compliance with the requirements for ignitable, reactive, or incompatible wastes, pursuant to 20.4.1 NMAC, Subpart V, 264.17(c) [6-14-00]. Wastes carrying the EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will not be stored in TA-50 CSUs; therefore, the requirements of 20.4.1 NMAC, Subpart V, 264.175(d) [6-14-00] are not applicable.

2.1.11 Closure

Closure will consist of partial closure of one or more of the CSUs at TA-50 while leaving the other hazardous and mixed waste units at LANL in service. Partial closure activities will, at a minimum, include removal of hazardous and/or mixed waste from the CSU to be closed and decontamination of any surfaces or equipment that has been contaminated by hazardous constituents. Closure will minimize the need for further maintenance, preclude the release of hazardous constituents to environmental media, and be protective of human health and the environment, in accordance with the closure performance standards specified in 20.4.1 NMAC, Subpart V, 264.111 [6-14-00]. Detailed closure procedures for the TA-50 CSUs are addressed in Attachment F of this permit renewal application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.111 and 264.178 [6-14-00].

2.1.12 Control of Run-On and Runoff

Run-on into the TA-50-69, Indoor CSU from outdoors is not likely to occur. Positive surface drainage will direct potential run-on away from the building. Run-on into the TA-50-69, Outdoor CSU is prevented because the CSU is elevated by design. The Outdoor CSU is sloped sufficiently to prevent the accumulation of precipitation and drainage swales located in the vicinity divert storm water away from the CSU. One drainage swale is located just south of the CSU, between it and Material Disposal Area-C. A second drainage swale is located on the west side of the CSU between Pecos Drive and the TA-50 fence line. Figure A-11 in Attachment A of this permit renewal application shows the contours and surface drainage around the TA-50 CSUs. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(8)(ii) [6-14-00].